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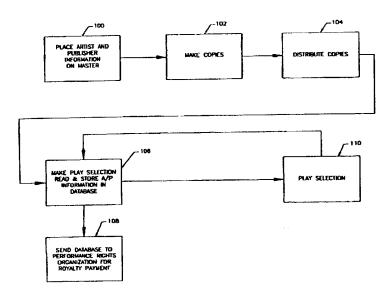
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(57) Abstract

A method and apparatus for determining payments due for accountable use of one or more protected materials. The protected materials are documented in a database which includes relevant details concerning each of the protected materials (100). Then each copy of a medium (such as a compact disc) including the protected materials is encoded with references to the materials included (102). Upon each use of the copy of the medium (106), the information included in the references encoded on the medium is available to be used with the database to properly allocate copyright payments due (106b').

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Description

SYSTEM FOR COMPUTING FEES FOR USE OF INTELLECTUAL PROPERTY

Technical Field

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The present invention relates to methods and apparatus for determining distributions of payments, and more particularly, to methods and apparatus for determining payments due for accountable use of one or more legally protected materials.

Background of the Invention

The invention is a method and apparatus for fairly allocating copyright royalties among artists (including writers) and publishers (A/P), including those who are generally overlooked under other methods of obtaining copyright royalty payment data. The invention is also a method and apparatus for accurately correlating license fees with actual use. The invention is further a method and apparatus for allocating other payments due to the owner or holder of digital information, as will be described subsequently.

When copyrighted music is performed for profit (whether, for example, in live performances, recordings or broadcast), it is important to be able to properly allocate copyright royalty payments due to the authors of copyrighted materials. At present, such payments are made based on estimates through a well-known process called sampling.

Among the various systems that are useful for part of the process of determining and/or allocating royalties is that described by Lert, Jr., et al., in U.S. Patent No. 4,230,990, entitled "Broadcast Program Identification Method and System." Another is described by Kenyon et al., in U.S. Patent No. 4,843,562, entitled "Broadcast Information Classification System and Method." While these systems are useful in identifying materials that are broadcast, they do not complete the process of determining the parties to whom royalty payments are due.

Summary of the Invention

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In accordance with one aspect, the invention is an apparatus for determining payments due for accountable use of one or more protected materials. The invention includes means for storing identification data concerning the protected materials, means for receiving data concerning the use of materials under predetermined circumstances, and means for comparing the data concerning the use of materials with the identification data concerning the protected materials and determining the protected materials that are used. The apparatus further includes means for identifying the parties to whom the payments are due as a result of the accountable use of the protected materials under the predetermined circumstances.

In accordance with another aspect, the present invention is a method for determining payments due for accountable use of one or more protected materials. The method includes the steps of a) storing identification data concerning the protected materials, b) receiving data concerning the use of materials under predetermined circumstances, and c) comparing the data concerning the use of materials with the identification data concerning the protected materials. The method further includes the steps of d) determining the protected materials that are used, based on step c), and e) identifying the parties to whom the payments are due as a result of the accountable use of the protected materials under the predetermined circumstances.

In accordance with a further aspect, the invention is an apparatus for determining payments due for accountable use of one or more protected materials. The invention includes a storage device to store identification data concerning the protected materials, a receiving device to receive data concerning the use of materials under predetermined circumstances, and a comparison device to compare the data concerning the use of materials with the identification data concerning the protected materials and to produce a comparison signal representing the results of the comparison. The invention further includes an electronic circuit to determine the protected materials that are used, and an identification device to identify the parties to whom the payments are due as a result of the accountable use of the protected materials under the predetermined circumstances.

Brief Description of the Drawings

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Figure 1 is a schematic diagram of a preferred method for recording copies of information required for the inventive method and apparatus.

Figure 2 is a schematic diagram of a first preferred method for making a play selection in accordance with the present invention.

Figure 3 is a schematic diagram of a second preferred method for making a play selection in accordance with the present invention.

Figure 4 is a schematic diagram of a preferred method for making a database of information concerning parties to whom payments may be made.

Figure 5 is a schematic diagram of a first preferred method for recording information relating to parties to whom payments may be made for plays of a particular CD work.

Figure 6 is a schematic diagram of a second preferred method for recording information relating to parties to whom payments may be made for plays of a particular CD work.

<u>Detailed Description of the Preferred Embodiments of the Invention</u>

One preferred embodiment of the present inventive system has the advantage of being both less costly and more equitable than those systems for payment determination and distribution that are currently in use or those proposed in the known relevant literature. This is the case because, in the present system, license fees and royalty disbursals are based on actually counting each performance of every work rather than estimates. This allows the license fees and royalty disbursals to be precisely determined. This preferred embodiment of the inventive system can be used with live performances of copyrighted music, theatrical works, dance, literature, etc., including all works that are subject to copyright. The system can also be used with sales of recorded and printed versions of the above, as well as broadcast and/or play-for-profit of recorded and printed versions of the above copyrightable works.

This preferred embodiment of the inventive system is based on digital technology, specifically a programmed personal computer (PC) which electronically monitors other circuitry for the purpose of proper allocation of royalties due to the play (or display) of copyrighted material by a device. The PC also has access to a database, typically a database built into the PC, but alternatively an offsite database (such as a dial-up database). The database can be paid for by a percentage of moneys collected or by a unit fee paid by those using the database.

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In the case of recorded audio tracks, the information in the database includes writer/publisher data. This data is automatically entered for every broadcast play by the playing device which reads the writer/publisher (A/P) data encoded on master recordings. In addition, recordings whose masters did not include the encoded A/P data are assigned digitized data that will be entered by a keypad or bar-code scanner (or other alternative technologies). This can be accomplished by storing the data on the master recording or applying a bar code label to the master recording. The stamped data can then be entered through the keyboard and the bar code data can be read by the bar code reader.

The keypad and bar-code reader are capable of reading A/P data that is entered before or upon either (a) the play of recordings that were made earlier than the time when A/P data was recorded on master recordings, or (b) live performances of A/P recordings. In live performance venues (such as clubs and karaokes), there can also be data entry devices that are used to log daily performances. The A/P data is then logged for future use. Further, the PC system does not allow broadcast or play-for-profit of the selected media recording until the data is logged. The data system and points for collection of the data can be provided and maintained by licensing agencies.

The database is incapable of authorizing the broadcast or play-for-profit of a selection until the proper information has been supplied to the database. At that point, the database system can enable the broadcast or play-for-profit of the media selection. The main database is also revised to indicate the occurrence of the broadcast or play-for-profit. Subsequently, the database, with its included recordings of broadcast or plays for

profit, is used as a basis for the proper distribution of license fees and A/P royalty payments. The PC system including the database can be located close to the location where the play requests are made (e.g., hardwired to a play request device) or remotely (e.g., connected to a play request device via telephone line, fiber optic, microwave or other communications technologies).

The PC system can also be installed at establishments that pay royalties for broadcast and/or play-for-profit, such as broadcast stations and entertainment venues. These PC systems include electronic code readers designed to recognize, count and store play information. (The stored play information is collected periodically and royalties subsequently distributed on an actual) per-play basis.)

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Each separate selectable recording will include a unique identifying digital code, properly identifying the artist and publisher eligible for copyright payments for the broadcast or play-for-profit of the words and music. The code will be included on each commercially recorded/authorized copy containing the selectable play medium.

There are two main manners of storing the A/P information with the play medium. In one manner, the information is actually encoded in the master recording. In the other manner, the information is stored on a separate database maintenance device.

The information itself takes one of two primary forms. In one form, full A/P data and certain reference information is associated with each selection on the play medium. In the second form of information, the reference is to a separate body of data (such as a database) that contains all of the particulars. In one example, the database can be stored on a computer disk or other memory. This separate information regarding a selected play is retrieved and compiled separately for later analysis.

The processes and manners of storing and using database information are described in Figures 1-6. Figure 1 is a schematic diagram of a preferred method for recording copies of information required for the inventive method and apparatus. In step 100, the writer and publisher information is placed on a master copy of a recording medium. In step 102, copies of the master copy are made. Step 104 represents a distribution of the copies made in

step 102. Step 106 illustrates making a play selection, and then reading the A/P information and storing it in the database. Step 108 illustrates the step of sending the database to a performance rights organization for royalty collections and distribution.

Step 110 illustrates playing the selection made and then returning to step 106. In step 108, the data can be sent on removable medium such as a floppy disk or by transmitted medium such as by modem, using telephone lines or wireless communications.

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There are various alternative specific ways to perform step 106. Figure 2 is a schematic diagram of a first preferred method for making a play selection in accordance with the present invention, and Figure 3 is a schematic diagram of a second preferred method for making a play selection in accordance with the present invention.

As shown in Figures 2 and 3, step 106 is broken into substeps 106a and 106b. As is clear from Figures 1-3, step 106 is the step of making a selection. The entity making the selection can be a person or a selection device (such as a random selection device), among others known to those skilled in the art. As shown in Figure 2, step 106b (indicated as step 106b') refers to the selected track and the A/P information associated with that track is stored in the database. Step 110 is performed after the play is authorized when the A/P information is stored. This is indicated schematically by the switch between the step 106b' and the step 110. When the switch is open it is in condition "red", whereas when the switch is closed it is in condition "green".

As shown in Figure 3, step 106b (indicated as step 106b") goes to the selected track and there reads the A/P information for later use in the database. Step 110 is performed after the play is authorized when the A/P information is stored. This is indicated schematically by the switch between the step 106b" and the step 110. When the switch is open it is in condition "red", whereas when the switch is closed it is in condition "green".

As a third alternative, data telling the selected album and track is stored in a database and later retrieved for transmittal (which may be encoded for security) and the stored database information (which can also be encoded for security). This can be viewed as a merger of steps 106b' and 108' (in Figure 2) or a

merger of steps 106b" and 108" (in Figure 3), with the provision that the switch is not actuated until the information is stored in the database. It is also possible to transmit to two or more locations for documentation and archive purposes.

Figure 4 is a schematic diagram of a preferred method for making a database of information concerning parties to whom payments may be made. In Figure 4, step 100' illustrates reading A/P information from the medium and putting this information in the database when the master is made. In this case, there are both a master recording and a master database. Copies of both can be organized. After a selection is made (block 112), the selection data (album, track, etc.) is used to refer to the A/P information in the database. This information is coupled and later sent (via security described above) to a performing arts (PA) organization (step 116). Then another selection is played.

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Figure 5 is a schematic diagram of a first preferred method for recording information relating to parties to whom payments may be made for plays of a particular CD work. In this first alternative embodiment, and referring to Figure 5 (which is a schematic of a CD), the CD has physical edges I (for inner) and 0 (for outer). The information is recorded between an inner limit, 200, and an outer limit, 202. The information is separated into "tracks". The first track is located between limit 200 and limit 204; the second track between limits 204 and 206; the third track between 206 and 208; etc.

The first track contains information (often called the table of contents) regarding the CD as a whole: an album number, the total duration and other data related to the overall CD are included. The second track contains information relating to the selection recorded digitally in the second track, for example, time duration and A/P information. Likewise, the third and subsequent track contain the duration and A/P information. Schematically, this is shown below as Table 1.

Track	Character	Information Recorded
1	CD data	Overall structure ("0:59:36"), and album number ("COLO 01598").
2	Entertainment	Duration ("7:22"), track number ("1"), writer ("PORTER"), publisher ("STERLING").
3	Entertainment	Duration ("6:57"), track number ("2"), writer ("PORTER"), publisher ("BERRY").
4	Entertainment	Duration ("11:06"), track number ("3"), writer ("RODGERS"), publisher ("SONY").
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Table 1

In use, the CD player can be connected to read the data in track 1, for example, by displaying the total duration of the album entertainment tracks as well as a platform/recording characterization. Also, it can read the data in a track that can be selected for play, for example, track 4, where the track contains the duration ("11:06"), track number ("3"), writer ("RODGERS"), publisher ("SONY"), etc.

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Alternative methods and apparatus for encoding information on various selectable play media are described in U.S. Patent No. 4,018,448, to Di Matteo, entitled "Record for the Artificial Reproduction of Sounds," U.S. Patent No. 4,995,026, to Makabe et al., entitled "Apparatus and Method for Encoding Audio and Lighting Control Data on the Same Optical Disc," and U.S. Patent No. 5,051,569 to Tsuruoka et al., entitled "Method for Recording Data Onto Optical Data Recording Cards Including Data Regions and Sync Regions."

Recently a Digital Versatile Data (DVD) format has been specified for CD-like media based on optical recording technologies. The embodiment shown and described in Figure 5 can clearly be transferred to the DVD format by those skilled in the relevant arts.

Figure 6 is a schematic diagram of a second preferred method for recording information relating to parties to whom payments may be made for plays of a particular CD work. As shown in Figure 6, the inventive system 150 includes a personal computer 152, a CD player 154, broadcast equipment 156 and a database stored in a memory, such as a random access memory (RAM) 158 that is part of the personal computer 152. If desired the memory can

alternatively take the form of a non-electronic memory. The personal computer 152 is programmed in a conventional way to constitute a series of electronic circuits which accomplish desired purposes, such as storing identification data, receiving data, comparing data and other logical operations that are useful for various identification purposes.

The CD player 154 is connected to the personal computer 152 through a control line 160 and a data line 162. The CD player 154 receives control commands from the personal computer 152 through the control line 160 and transmits data to the personal computer 152 through the data line 162. The data transmitted to the personal computer 152 can include A/P information concerning a program that has been authorized by the personal computer 152.

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Further, in response to commands issued by the personal computer 152, the CD player 154 also causes data to be displayed on the display 164 and data (such as the authorized program data) to be transmitted to the broadcast equipment 156 over the data line 166. The broadcast equipment 156 then plays the authorized program data.

Still referring to Figure 6, Table 2 shows another way the data can be recorded.

Track	Character	Information Recorded
1	CD data	Overall structure: duration record ("01:59:36") and album number ("COLO 0159"); entertainment track number ("1"), duration ("7:22"), writer ("PORTER"), publisher ("STERLING"); entertainment track number ("2"), duration ("6:57"), writer ("PORTER"), publisher ("BERRY"); entertainment track number ("3"), duration ("11:06"), writer ("RODGERS"), publisher ("SONY").
2	Entertainment	track number ("1").
3	Entertainment	track number ("2").
4	Entertainment	track number ("3").
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Table 2

In use, a CD in the CD player 154 can be caused to read data in track 1, for example, to display total duration of the album ("0:59:36"), number of entertainment tracks, etc., on the display

164. This track can also be used for search purposes, for example, to answer queries such as "Which tracks are written by RODGERS?" and "Which tracks have a play time of less than 5:00?". Most relevant, however, is the fact that the data for a selected entertainment track is also stored in this track and is ready for easy readout and presentation to the personal computer 152.

The previously-mentioned DVD format can also be used in accordance with the apparatus and methods of the invention. For example, a DVD player can be substituted for the CD player 154 in Figure 6. The inventive method and apparatus can also be used in connection with other technologies, as will be appreciated by those skilled in the relevant arts. By way of explanation without limitation, the inventive method and apparatus can be used with any digital data, including the recently-authorized digital television formats. As one application to digital television, pay-per-view programming, which is currently available through cable and direct broadcast satellite systems, can be implemented instantaneously rather than ahead of time. Present pay-per-view systems require that a request to view a pay-per-view program be submitted ahead of time. However, with the method and apparatus of the present invention, a pay-per-view program can be joined in progress, as soon as the proper credit for any fees due are allocated as described above. Likewise, the Internet can serve as a conduit for digital information, so that content, such as audio files, video files, computer programs, or other data (including electronic mail) files can be downloaded after the party to whom a payment is due is credited with that payment through an authorized payment medium, such as a credit card. These files can be downloaded for a single- or multiple-use or for a time-limited use. For example, an audio file can be downloaded for multiple uses, or the latest version of a computer program can be downloaded for a single use. In those contexts where the digital information must be downloaded from a source, the invention can also be viewed as an anti-piracy method and apparatus. This is because when a party that requests downloading of information, a background check of the requesting party can be performed in addition to authorization of a payment method. In addition, the information can be transferred to the requesting party in a secure manner (for example, by means of commonly available high

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security encryption systems like PGP and other public key cryptosystems). Further the downloaded information can be encoded so as to be useful for only a predetermined number of uses or until a predetermined time or date.

The digital data can also be used to represent works of art, including pictorial works and 2- and 3-dimensional works.

In many mediums, digital information is transmitted by a packetization scheme. For example, the Internet (foremost among other digitally-based systems) transfers information by a packetization protocol known as TCP/IP. Piracy of such information can be largely diminished by including encrypted packets among the data that is transmitted. If the encrypted packets are not received correctly, the rest of the information that is being transmitted will not be properly readable. One way to accomplish this by causing the encrypted packet to include a key needed to decode the transmitted information. Without proper transmission of the encrypted packet, the key will not be complete.

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If desired, the database containing the A/P information as well as the database of authorized payments can be maintained by a separate party, such as a fee payment clearinghouse. The clearinghouse can assure proper payment of fees due for use of any digital information, such as audio files, computer programs, laser discs, CDs, DVDs or other forms mentioned herein. Such a clearinghouse can be authorized for operation by an organization intended to defend authors' rights for payment of use of digital information. An example of such an organization is the Software Publishers Association.

The method and apparatus can be used in a way such that a database of authorized use is maintained in a medium delivery system, such as a juke box, and the database is forwarded to a central location (or locations) on a scheduled basis or in accordance with predetermined criteria. For example, a juke box or PC at a radio broadcast station can be equipped with a modem (hardwired or wireless) and programmed to transfer its accumulated database over the modem after the lapse of a predetermined period of time, or in accordance with a predetermined schedule, or after the database has grown to a specified size or value. Such technology is available and its

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implementation in the context described above is known to those skilled in the relevant arts.

While the foregoing is a detailed description of the preferred embodiment of the invention, there are many alternative embodiments of the invention that would occur to those skilled in the art and which are within the scope of the present invention. Also, while the foregoing has primarily described the use of the inventive method and apparatus with proper allocation of copyright royalties, it will be understood that there are many more contexts than those described above in which a fee must be paid for the accountable use of protected materials. Accordingly, the present invention is to be determined by the following claims.

Claims

1. An apparatus for determining payments due for accountable use of one or more protected materials, comprising:

means for storing identification data concerning the protected materials;

means for receiving data concerning the use of materials under predetermined circumstances;

means for comparing the data concerning the use of materials with the identification data concerning the protected materials and determining the protected materials that are used; and

means for identifying the parties to whom the payments are due as a result of the accountable use of the protected materials under the predetermined circumstances.

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- 2. The apparatus of claim 1 wherein the means for identifying the parties to whom the payments are due further determines the amount of the payments due.
- 3. The apparatus of claim 2 wherein the payments due include copyright royalty fees.
 - 4. The apparatus of claim 2 wherein the payments due include licensing fees.

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- 5. The apparatus of claim 1 wherein the means for storing identification data includes a computer memory.
- 6. The apparatus of claim 1 wherein the means for receiving data concerning the use of material includes a programmed computer.
 - 7. The apparatus of claim 1 wherein the means for receiving data concerning the use of materials includes a non-electronic storage device.
 - 8. The apparatus of claim 1 wherein the means for comparing the data includes a programmed computer.

9. The apparatus of claim 1 wherein the means for comparing the data includes a non-electronic memory storage device.

- 10. The apparatus of claim 1 wherein the means for comparing the data concerning the use of materials with the identification data concerning the protected materials includes a programmed computer.
- 11. The apparatus of claim 1 wherein the means for identifying the parties to whom the payments are due as a result of the accountable use of the protected materials under the predetermined circumstances includes a programmed computer.
- 12. The apparatus of claim 1, further comprising means for obtaining permission from the parties to whom the payments are due.
 - 13. A method for determining payments due for accountable use of one or more protected materials, comprising the steps of:
 - a) storing identification data concerning the protected materials;

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- b) receiving data concerning the use of materials under predetermined circumstances;
- c) comparing the data concerning the use of materials with the identification data concerning the protected materials;
- d) determining the protected materials that are used, based on step c); and
- e) identifying the parties to whom the payments are due as a result of the accountable use of the protected materials under the predetermined circumstances.
 - 14. The method of claim 13 wherein step a) includes storing the identification data in a computer memory.
- 35 15. The method of claim 14 wherein step a) includes storing the identification data in a non-electronic memory.

16. The method of claim 14 wherein step b) includes receiving data concerning the use of material in a non-electronic memory storage device.

- 5 17. The method of claim 13 wherein step c) includes comparing the data concerning the use of materials with the identification data concerning the protected materials by means of a programmed computer.
- 18. The method of claim 13 wherein step c) includes comparing the data in a non-electronic memory storage device.

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- 19. The method of claim 13 wherein step e) includes identifying the parties to whom the payments are due by means of an electronic circuit.
- 20. The method of claim 13 wherein step e) includes identifying the parties to whom the payments are due by means of a programmed computer.

21. The method of claim 13, further including the step of:

- f) obtaining permission from the parties to whom the payments are due.
- 25. 22. An apparatus for determining payments due for accountable use of one or more protected materials, comprising:

a storage device to store identification data concerning the protected materials;

a receiving device to receive data concerning the use of materials under predetermined circumstances;

a comparison device to compare the data concerning the use of materials with the identification data concerning the protected materials and to produce a comparison signal representing the results of the comparison;

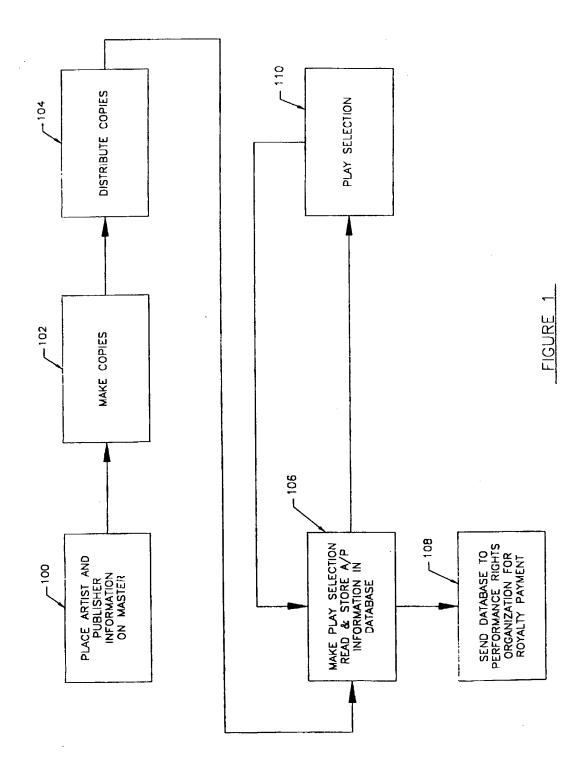
an electronic circuit to determine the protected materials that are used; and

an identification device to identify the parties to whom the payments are due as a result of the accountable use of the protected materials under the predetermined circumstances.

23. The apparatus of claim 22 wherein the storage device includes a computer memory.

- 5 24. The apparatus of claim 22 wherein the receiving device includes a programmed computer.
 - 25. The apparatus of claim 22 wherein the receiving device includes a non-electronic storage device.
- 26. The apparatus of claim 22 wherein the comparison device includes a programmed computer.

- 27. The apparatus of claim 22 wherein the comparison device includes a non-electronic memory storage device.
 - 28. The apparatus of claim 22 wherein the electronic circuit includes a programmed computer.
- 29. The apparatus of claim 22 wherein the identification device includes a programmed computer.
- 30. The apparatus of claim 22, further including a permission device to obtain permission of the parties to whom the payments are due.



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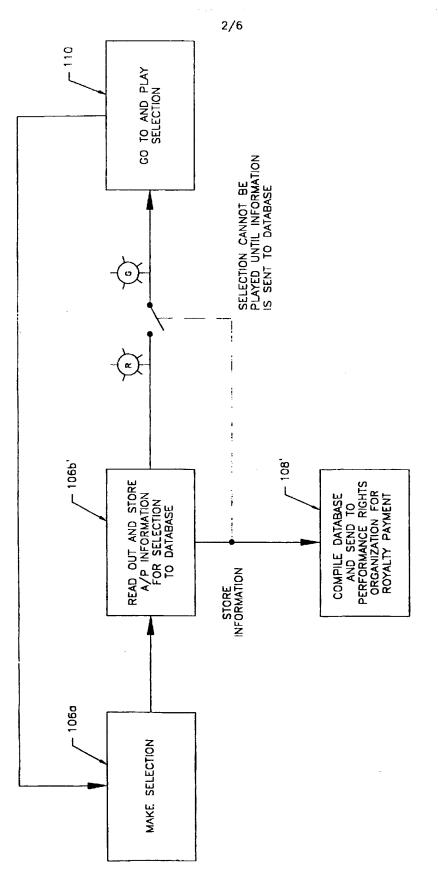


FIGURE 2

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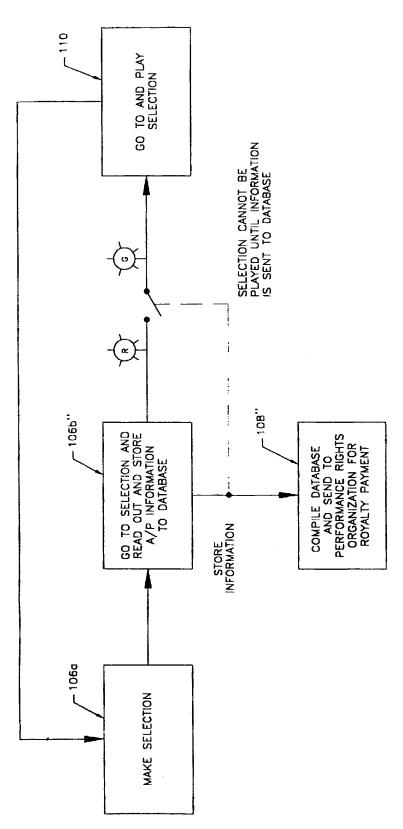


FIGURE 3

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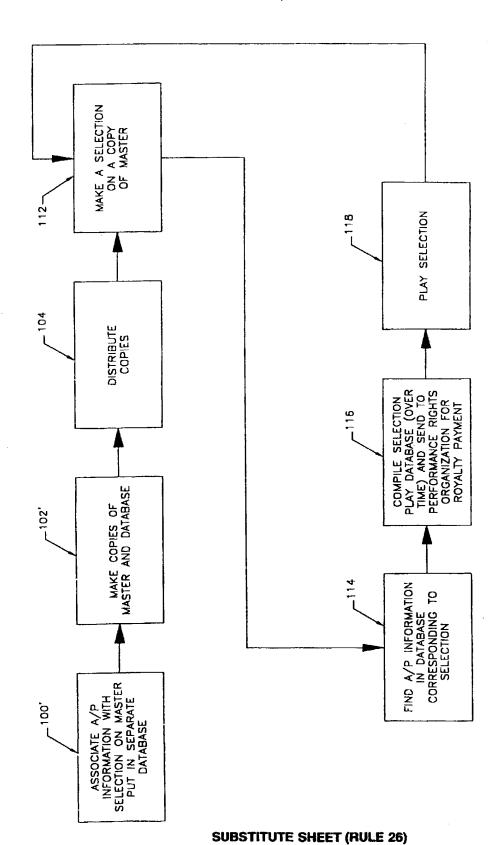
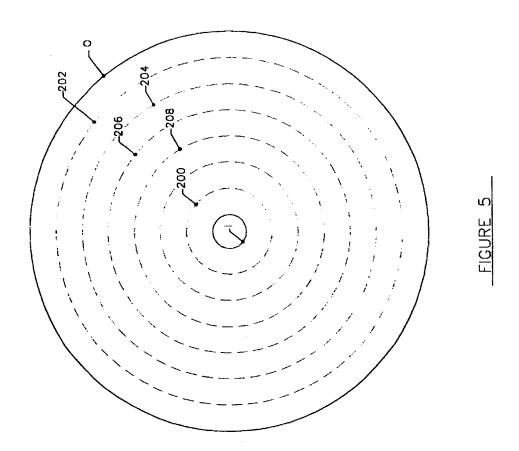


FIGURE 4

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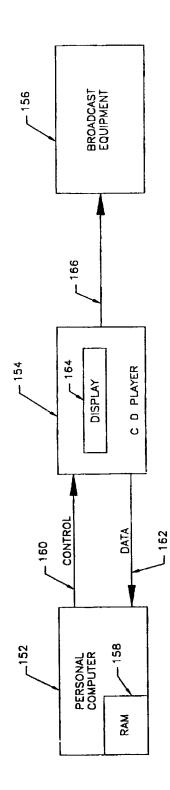


FIGURE 6

INTERNATIONAL SEARCH REPORT

International application No. PCT/US97/12836

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A. CLASSIFICATION OF SUBJECT MATTER				
HECT .	:G06F 17/40, 17/60 : 705/30; 380/4		Ī	
According to	o International Patent Classification (IPC) or to both a	ational classification and IPC		
B. FIZLDS SEARCHED				
Minimum de	ocumentation searched (classification system followed	by classification symbols)		
U.S. : 705/30; 380/4				
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Electronia d DIAL/)G	ata base consulted during the international search (na APS	me of data base and, where practicable	, search terms used)	
C. DI)CUMENTS CONSIDERED TO BE RELEVANT				
Categori.a	Citation of document, with indication, where app	propriete, of the relevant passages	Relevant to claim No.	
Y	US 5,444,779 A (DANIELE) 22 Augu	st 1995, abs., cols 1 - 5.	1-4,6-13,15- 22,24-30	
Y	US 5,410,598 A (SHEAR) 25 April 19	995, abs., cols 2 - 7.	1,2,4-10,12- 18,21-28	
Y	US 4,173,408 A (STEWART) 06 Nov and 21 - 22.	ember 1979, abs., cols 1 - 4	1,3,7,9,13,15,16, 18,22,25,27	
Y	SMITH, Mary Grace "A New Se Commerce", Communications Week, n entire document.		1-30	
I				
		FT		
X Further documents are listed in the continuation of Box C. See patent family annex.				
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INTERNATIONAL SEARCH REPORT

International application No. PCT/US97/12836

atagory *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No
	Paula Lieberman, "Multiple Disc CD-ROM Systems", CD-ROM Professional, v 8, n 3, March 1995, pages 6 - 7.	1,3-6,11-14,19- 24,28-30
	David B. Boelio, "The CD-MAX Approach to Usage Pricing", CD-ROM Professional, v 7, n 5, Sep/Oct 1994, pages 47 - 48.	1-10,13-18,22-28
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